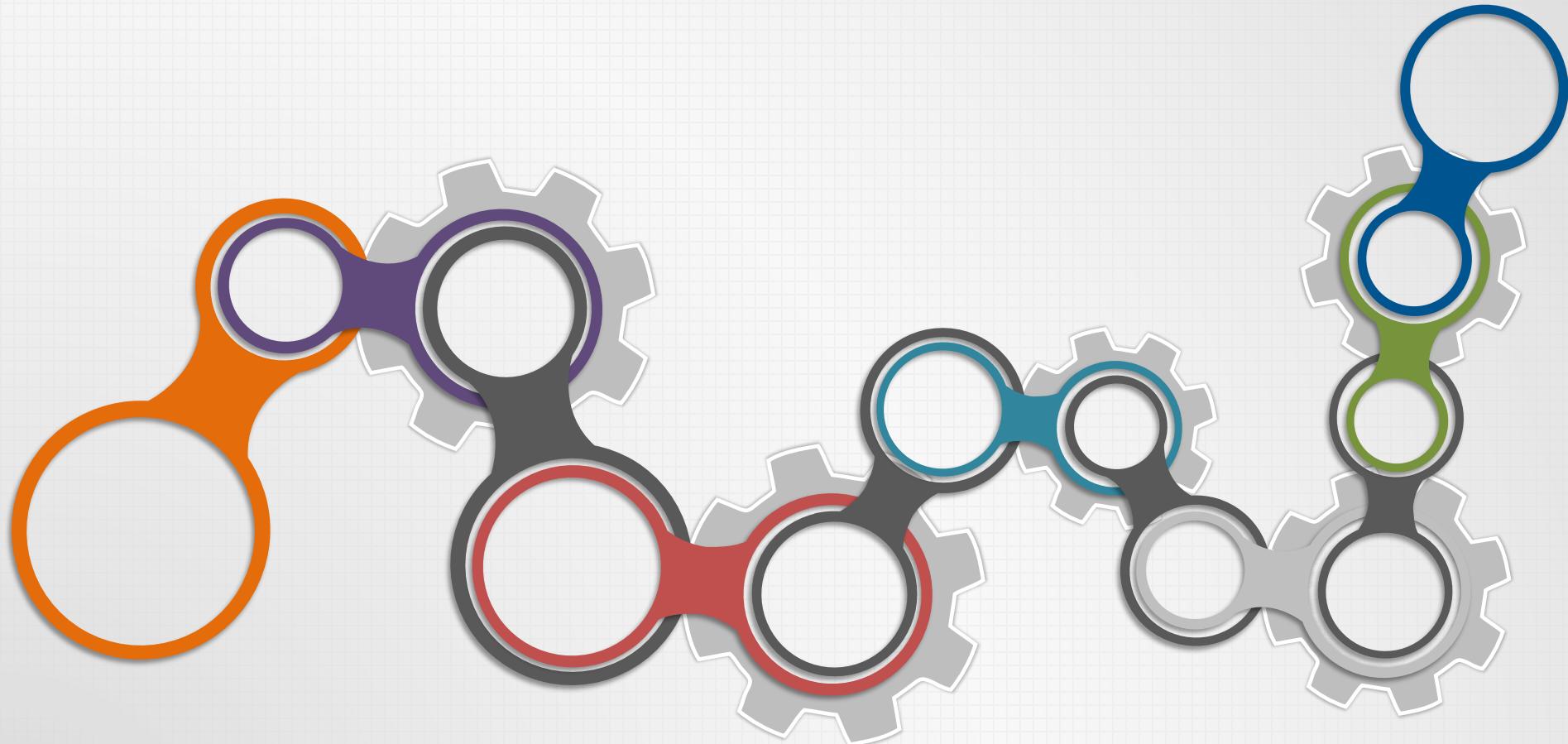


Topic 5 Blockchain-A Disruptive Technology: Beyond Coins

AFIN8014

FinTech and Innovation





Learning Objectives

- Review the fundamental key elements of blockchain
- Define and understand the ‘smart contract’ concept
- Discuss how smart contracts on blockchain may disrupt the existing financial system
- Analyze potential blockchain innovations in three main financial areas

Blockchain Technology

transparent: copies of the ledger are stored on every block

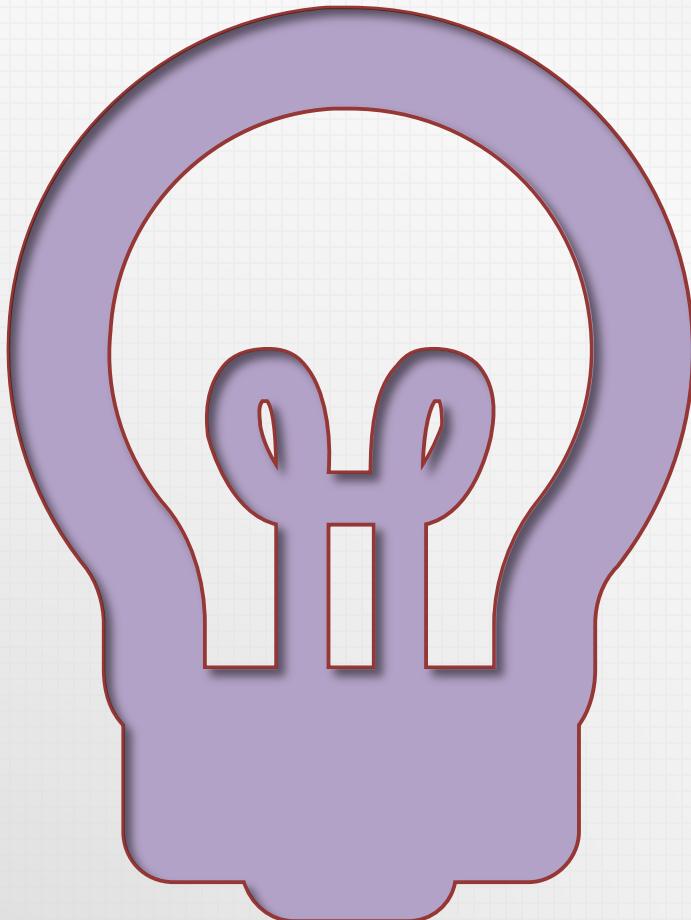
immutable: Lower likelihood of hacking

Blockchain A
Decentralized Database

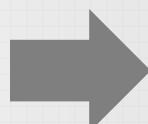
uses data elements encrypted in blocks of computer code.

blocks are chained together across a shared ledger through cryptology

Intuition of Blockchain



Because every participant in this blockchain database receives the same copy of the ‘whole’ ledger, there is no longer a need for a central authority (such as a bank) to keep track of participants’ information.



Smart Contract



Nick Szabo coined the term 'smart contract' in 1997.

An agreement enforced not by law, but by hardware or software that would 'fully embed in property the contractual terms which deal with it.'

Existing Example in 1997: a vending machine



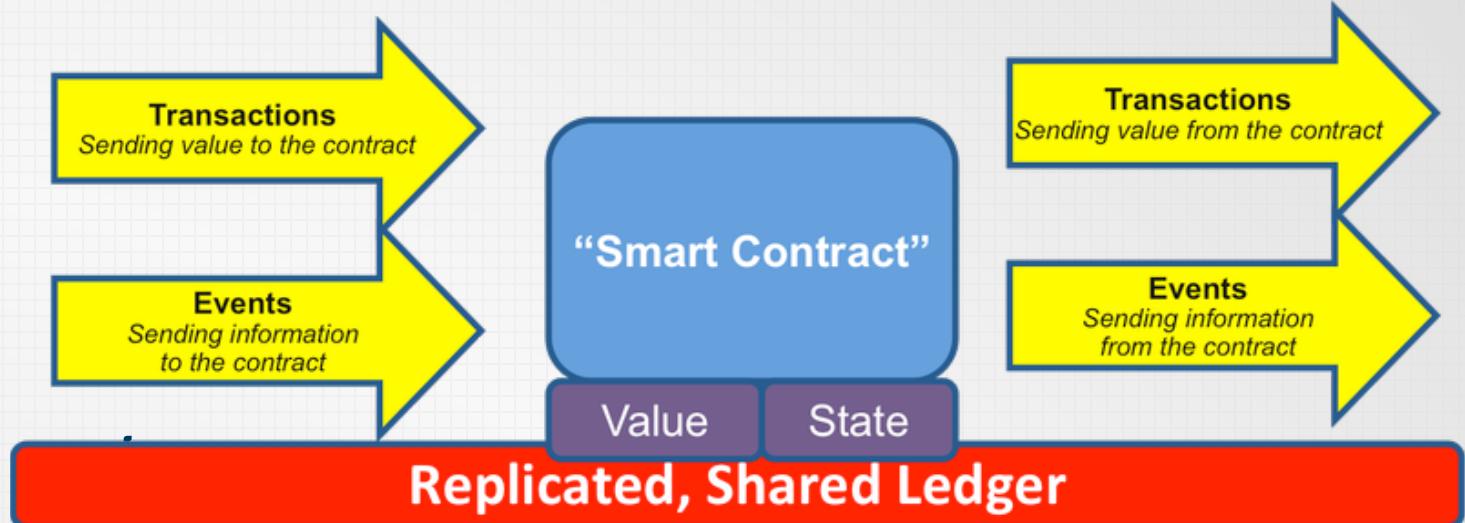
Smart Contract



Richard Gendal in 2015:

'A smart contract is an event-driven computer program, with state, which runs on the blockchains and which can take custody over assets on that ledger'



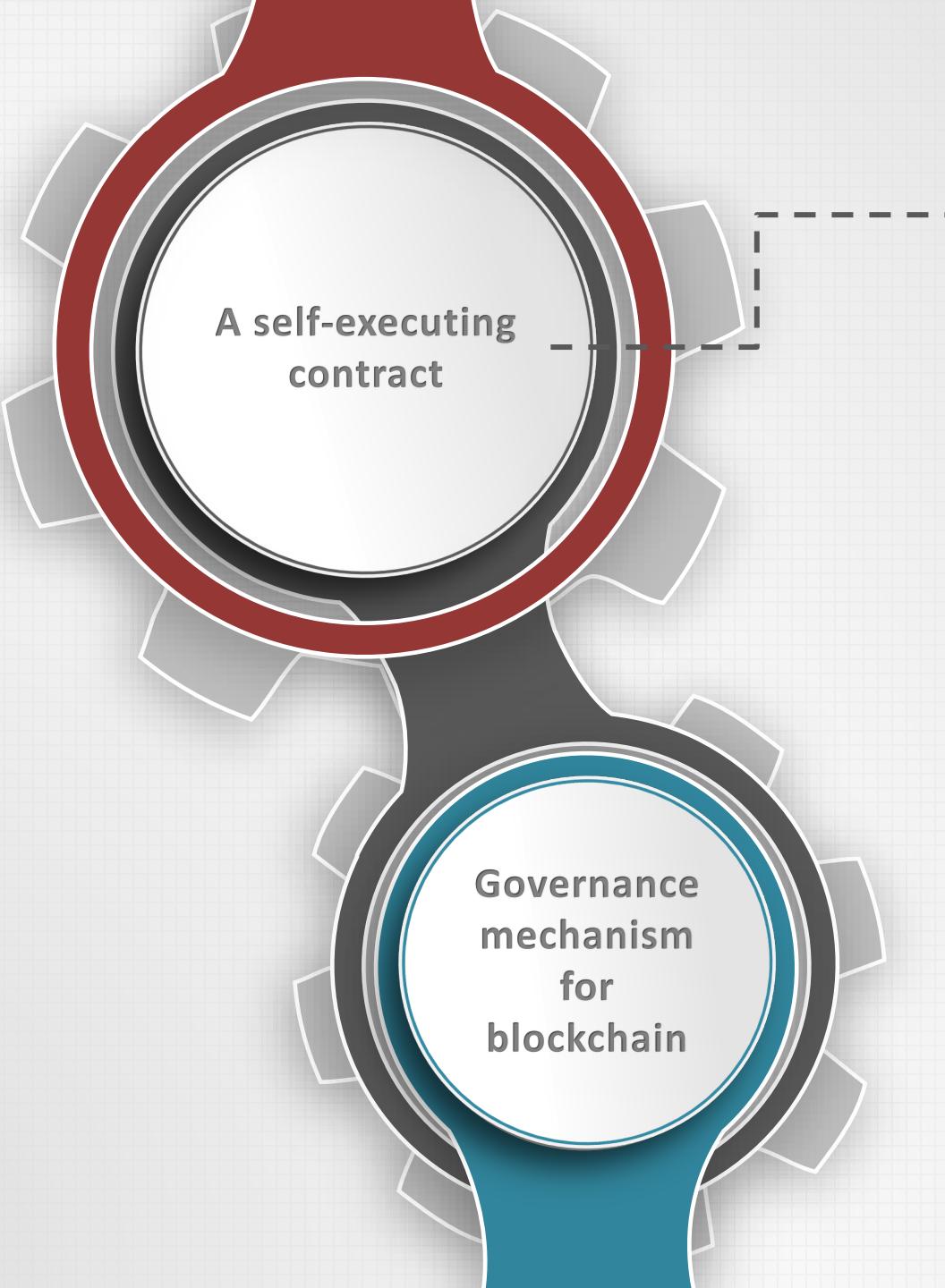


A set of digital terms, including protocols within which the parties perform on the terms.

A computerized algorithm : performs the terms of a contract

Can be written on and off blockchain



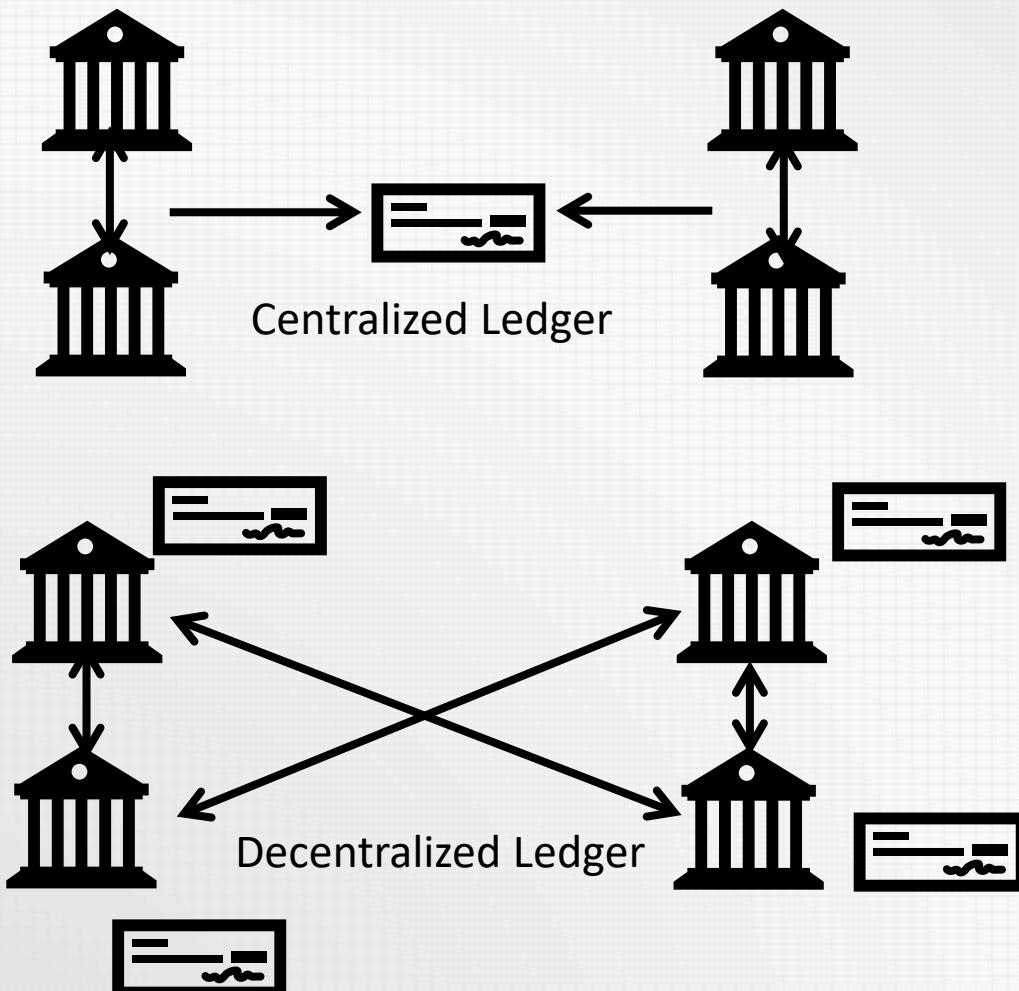


**Smart Contract on
Blockchain**

A self-executing
contract

Governance
mechanism
for
blockchain

Blockchain Innovations in Finance



- Cross-border Payment System
- Asset-backed Securities
- Financial Notes

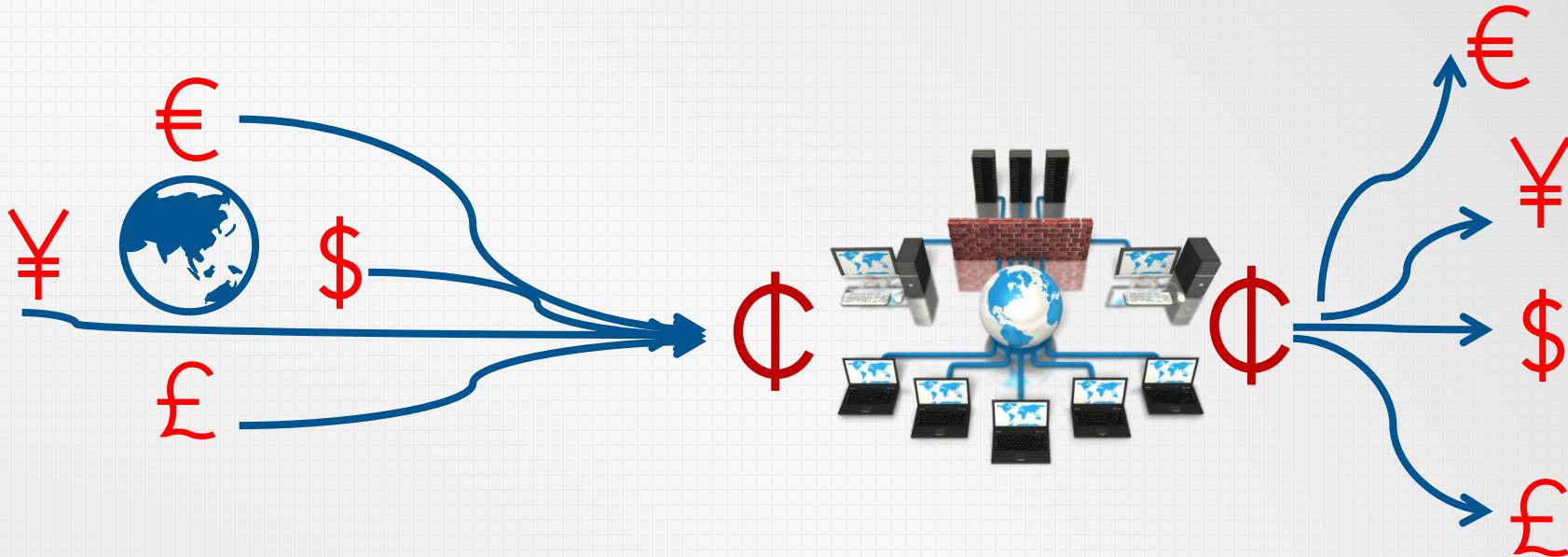
Blockchain Innovation: Cross-borderer Payment



Current cross-boarder payment system

- Complex authorization, authentication, clearing, and settlement process
- Each step of this process requires time and money to complete, creating an overpriced and frustrating bottleneck.
- SWIFT system is used to make cross-border transfers via intermediary banks. (75% of the market share, and the value of funds transferred over SWIFT gpi in 2018 was \$40 trillion.)
- The average for sending payments worldwide is 7%, (World Bank) and 3-5 days transit time

Blockchain Innovation: Cross-border Payment

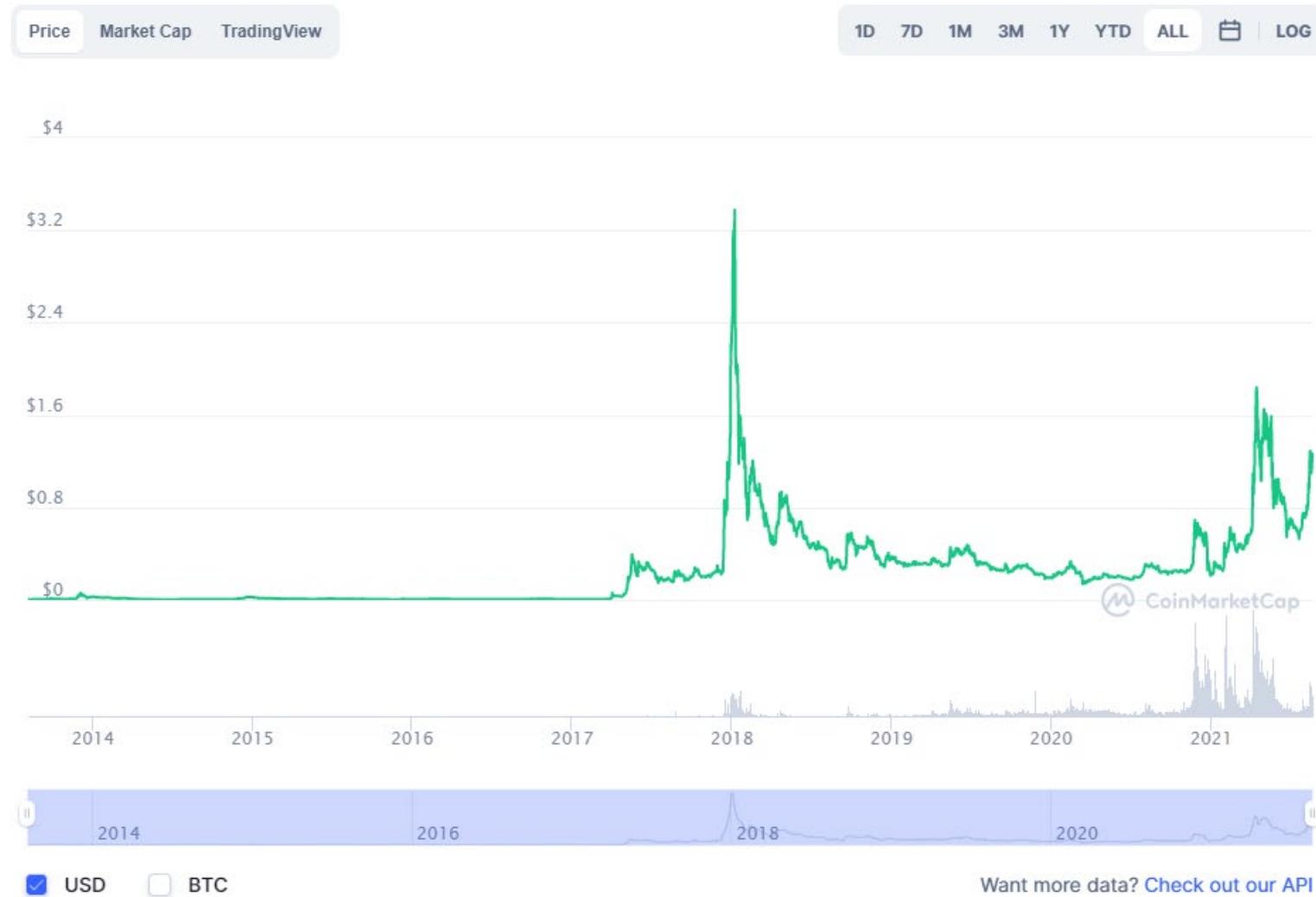


An example: Ripple (XRP)
Advantages?
Challenge?

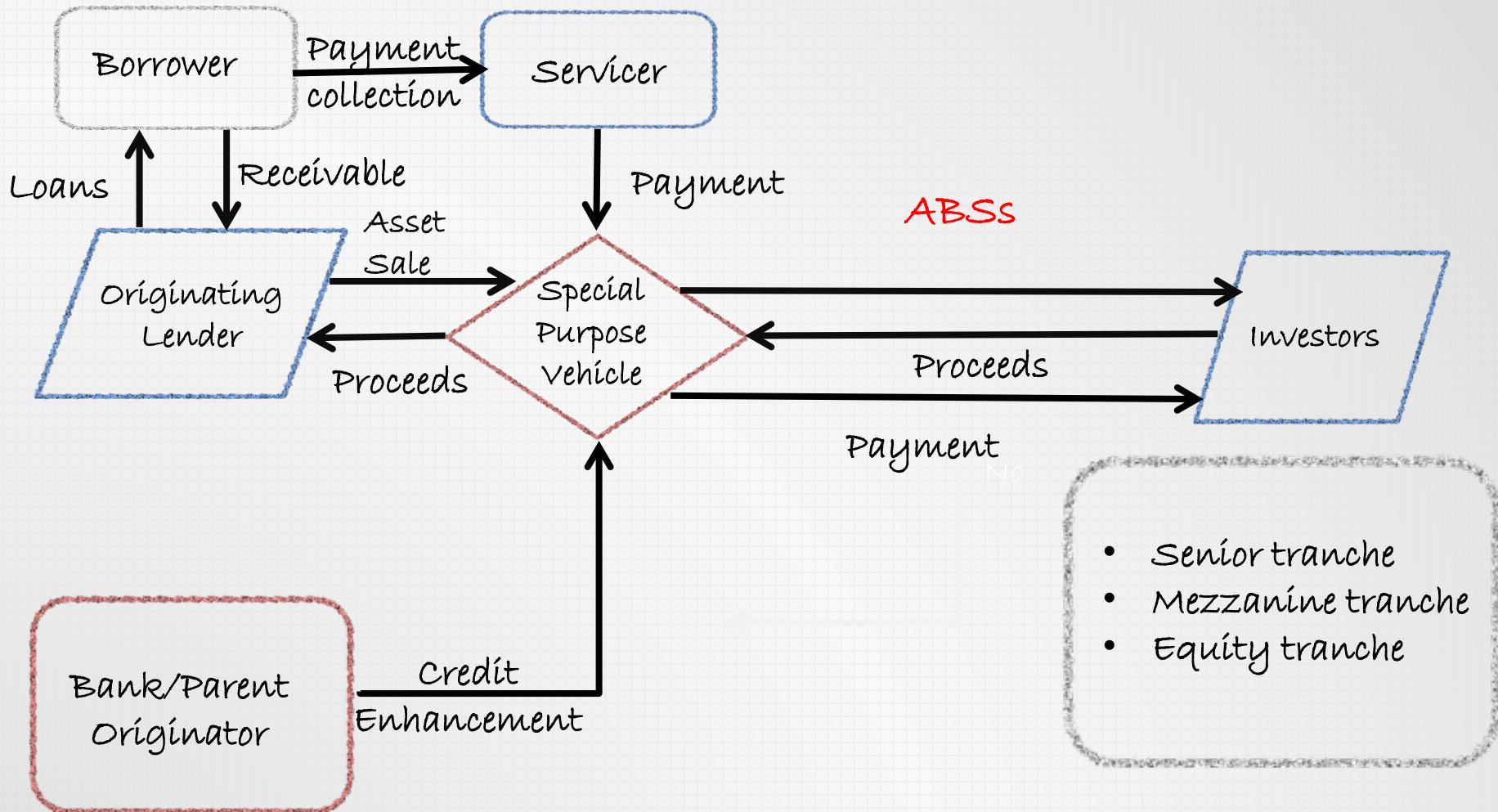
How SWIFT respond to blockchain
disruptors?

Ripple: XRP Price in One Year

XRP to USD Chart



Blockchain Innovation: Asset-backed securitization



Asset-backed Securitization Process

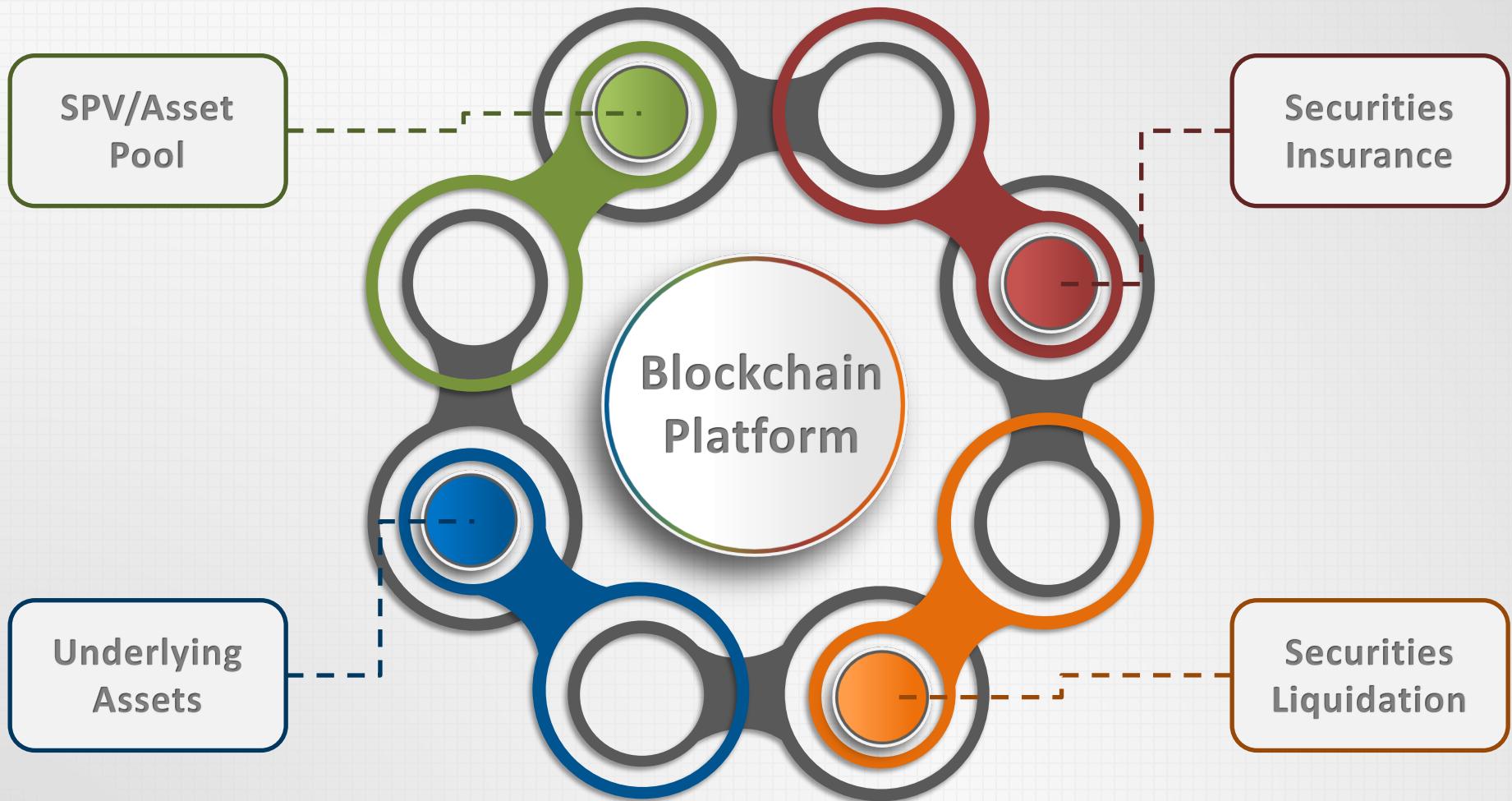
Blockchain Innovation: Asset-backed securitization

A public financing technique using a variety of assets with stable future cash flows

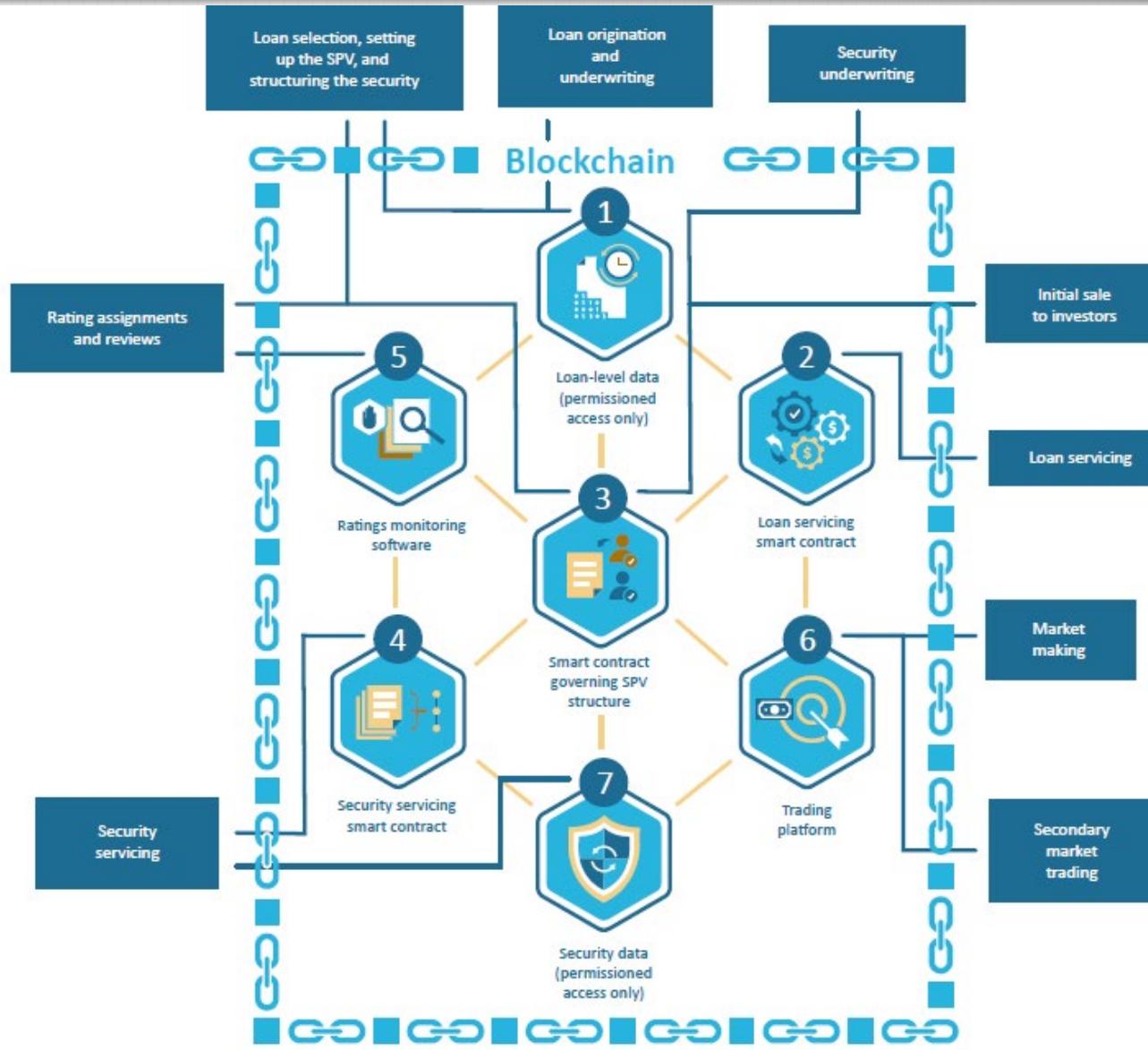
- Mortgage
- Consumer credit
- Corporate and sovereign loans
- Trade receivables
- Individualized lending agreements etc.

- Complex process
- Duplication of efforts
- Stakeholders
 - Legal counsel
 - Accountants
 - Rating agencies
 - Underwriters.
- Lack of transparency:
 - Information and data are not shared
 - Reporting and underwriting are inefficient
 - Interpretations issues
- **Risks of fraud**

Blockchain Innovation: Asset-backed securitization



Blockchain Innovation: Asset-backed securitization



Case: Figure.com

ducts Education Company Log In

Find My Rate

Figure in the news

OWDFUND
SIDER



[cryptolydion.com](#)

3/13/2020
Reports Completion of
Securitization on
Over 100 BPS

Figure Completes First Blockchain-Based
Securitization of \$150M Loans

<https://www.figure.com/about/>

SLUDGEFEEDS

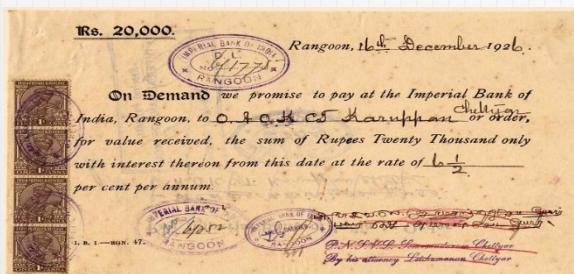
3/13/2020

Figure Achieves Breakthrough With
Completion of First Asset-Backed
Securitization on Blockchain, Generating
Over 100 Basis Points of Savings

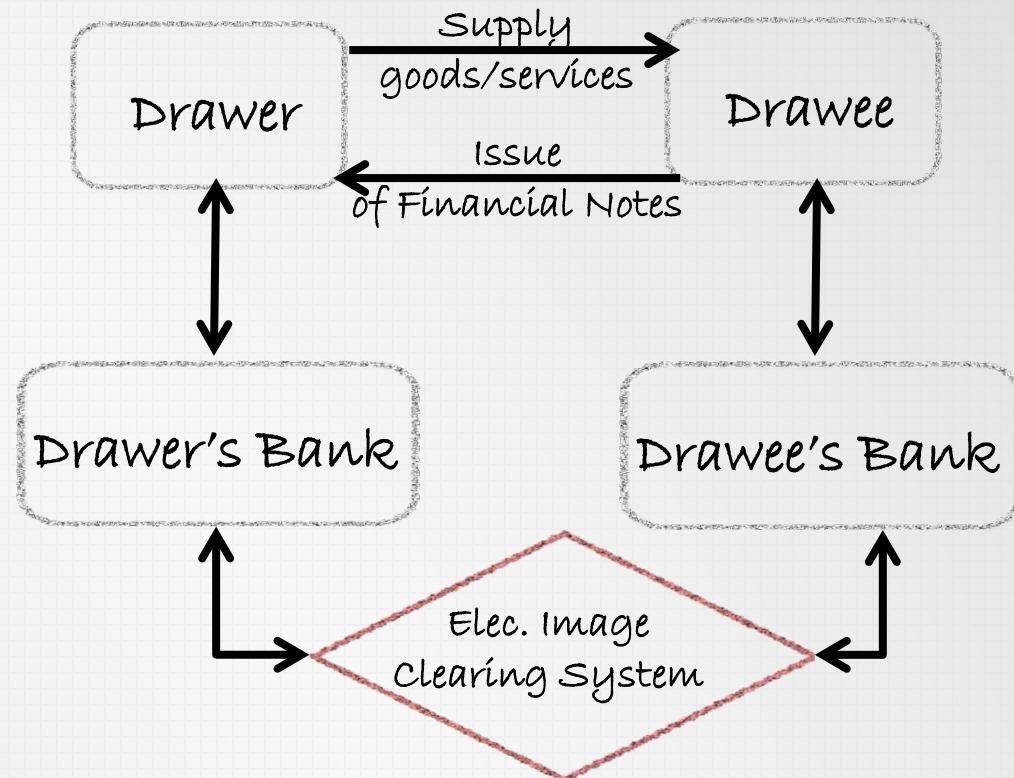


Blockchain Innovation: Financial Notes

Financial Notes



Example



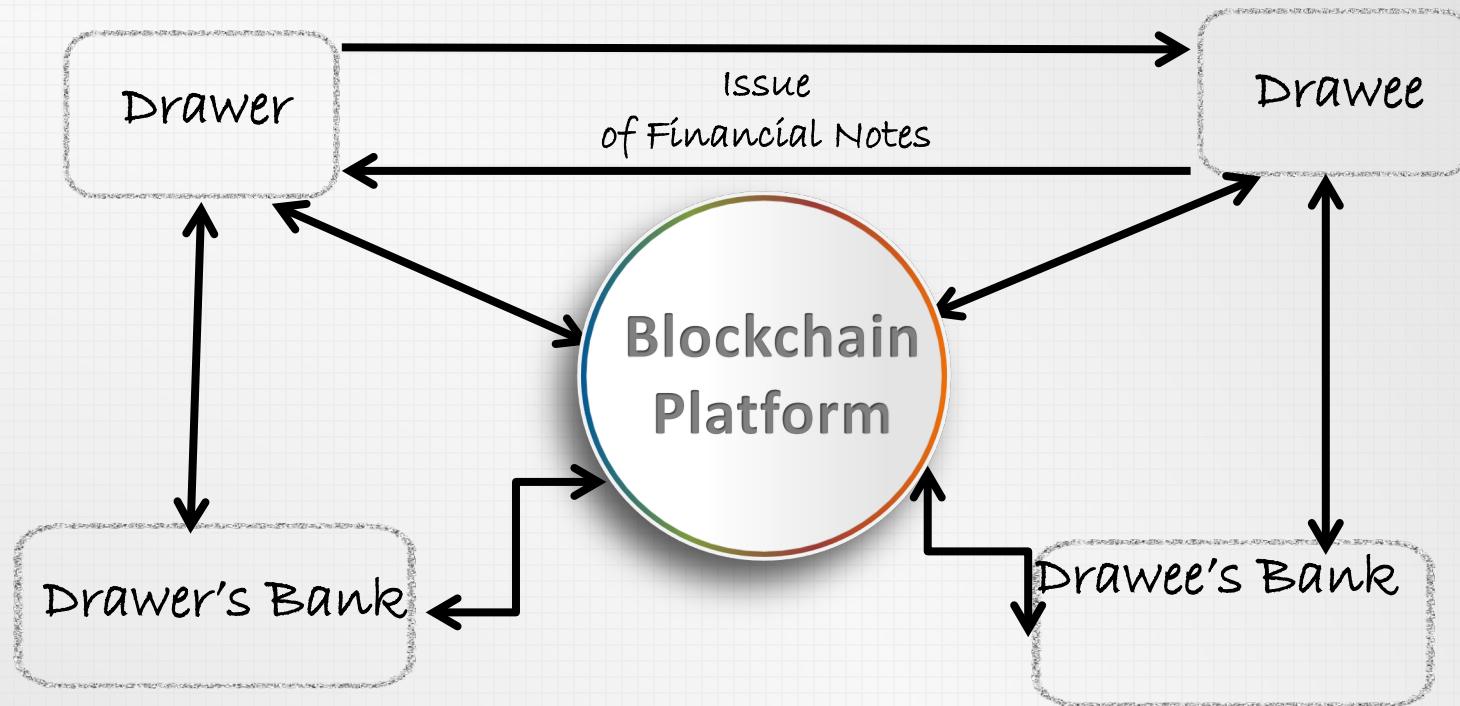
Issues

- Counterfeited notes
- Default risks
- Rogue-trading problems

Blockchain Innovation: Financial Notes on Blockchain

Example

Supply goods/services



Blockchain Financial Note

- No need for third-party supervision of value transfer
- Reduce transaction risks
- Reduce audit costs

Blockchain Innovation: Financial Notes

Digital notes based on Blockchain China

2016

People's Bank of China (PBOC): blockchain could improve the efficiency of commercial paper transactions and reduce regulatory costs.

The Shanghai Commercial Paper Exchange: a plan for an exchange platform based on blockchain, aimed at reducing fake information and controlling illegal transactions.

2017

The first transaction about blockchain digital notes

2018

A blockchain platform for the finance trade: providing services including both supply chain and cross-border financing and regulation of international trade funds. (1,898 companies on the platform, with business worth about 75 billion yuan (\$10.7 billion))

Barriers to Implement



- Zoom Discussion : Ripple
- Revisit Ripple's case to explore
 - (a) Challenges facing by Blockchain FinTech start-up companies
 - (b) The barriers for Blockchain to be massively adopted

Barriers to Implement



- Data Security and Privacy
- Blockchain technology is not yet fully vetted
- Legal and regulatory uncertainty

Additional obstacles

- Agreeing on data standard
- Getting to scale and dividing cost
- Ensuring interoperability

Current Developing



- Data Security and Privacy
- Legal and regulatory uncertainty

Additional obstacles

- Agreeing on data standard
- Getting to scale and dividing cost
- Ensuring interoperability

